

1025

(2) INFORMATION FOR SEQ ID NO:5:

- (1) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 30 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(11) MOLECULE TYPE: DNA (genom)

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:5:

GCAAGGAGGG TTGTCACTG

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(2) INFORMATION FOR SEQ ID NO:6:

- (1) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(11) MOLECULE TYPE: DNA (genom)

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:6:

CCGATTCCAC TGTAGTGTTA GCC

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(2) INFORMATION FOR SEQ ID NO:7:

- (1) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(11) MOLECULE TYPE: DNA (genom)

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:7:

TAACACTACA GTGGAATCGG

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(2) INFORMATION FOR SEQ ID NO:8:

- (1) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(11) MOLECULE TYPE: DNA (genom)

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:8:

AAATCCAGGC AGAGCACGAG

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(2) INFORMATION FOR SEQ ID NO:9:

- (1) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(11) MOLECULE TYPE: DNA (genom)

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:9:

TGCTCGTGCT CTGCTGGAT TTCC

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(2) INFORMATION FOR SEQ ID NO:10:

(1) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: antisense
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(11) MOLECULE TYPE: DNA (genomic)

(X1) SEQUENCE DESCRIPTION: SEQ ID NO:10:

ATTGAATGGT CATTGACATG AGAC

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(2) INFORMATION FOR SEQ ID NO:11:

(1) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(X1) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Cys Xaa Xaa Cys Xaa Xaa Cys Xaa Xaa Xaa Cys Xaa
 1 5 10

(2) INFORMATION FOR SEQ ID NO:12:

(1) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(X1) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Cys Xaa Xaa Cys Xaa Xaa Cys Xaa Xaa Xaa Cys Pro
 1 5 10

(2) INFORMATION FOR SEQ ID NO:13:

(1) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(X1) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Val Xaa Val Xaa Gly Xaa Gly Xaa Xaa Gly Xaa Xaa Xaa Ala Xaa Xaa
 1 5 10 15

Ala

What is claimed is:

1. An isolated nucleic acid encoding a dihydropyrimidine dehydrogenase (DPD) protein wherein the nucleic acid selectively hybridizes, under stringent hybridizing conditions, to a second nucleic acid consisting of the nucleotide sequence of Seq. ID No. 1 or Seq. ID No. 3 or an isolated nucleic acid which encodes seq ID Nos:2 or 4.

2. The nucleic acid of claim 1 wherein the nucleic acid is of human origin.

3. The nucleic acid of claim 2 wherein the nucleic acid consists of the nucleotide sequence of Seq. ID. No.1.

4. The nucleic acid of claim 1 wherein the nucleic acid is of pig origin.

5. The nucleic acid of claim 4 wherein the nucleic acid consists of the nucleotide sequence of Seq. ID. No.3.

6. The nucleic acid of claim 1 wherein the nucleic acid is full-length.

7. An isolated oligonucleotide probe that selectively hybridizes, under stringent hybridizing conditions, to Seq ID NO:1 or 3, wherein said probe does not selectively hybridize, under stringent hybridizing conditions, to a non-DPD nucleic acid.

8. An oligonucleotide probe of claim 7 that is between about 10 and 100 nucleotides in length.

9. An expression vector comprising a selectable marker, wherein the selectable marker is a nucleic acid of claim 1.

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10. An expression vector as in claim 9 wherein the selectable marker is operably linked to at least one promoter.

11. An expression vector as in claim 10 wherein the promoter functions in a eukaryote.

12. An expression vector as in claim 10 wherein the promoter functions in a prokaryote.

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13. An expression vector as in claim 10 wherein the selectable marker is operably linked to both a prokaryotic and a eukaryotic promoter.

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